Remarks/Arguments:

Claims 1, 7-8, 11 and 17-18 are canceled herein, and claims 2 and 12 have been previously canceled. Claims 3-6, 9-10, 13-16 and 19-26 are pending in the present application, all of which are rejected in the Office Action of April 8, 2005 as being obvious. Of the currently pending claims, the referenced Office Action rejects claims 6, 9-10, 16, and 22-23 as being obvious over Vimpari in view of Toskala; rejects claims 3-5, 13-15, 21 and 24 as being obvious over Vimpari and Toskala in further view of Dent; and claims 25-26 as being obvious over Vimpari and Toskala in further view of Magnusson.

A first distinguishing feature over the cited art is present in claims 3-5, 13-15 and 21. Claim 3 is taken as representative for purposes of these remarks, and recites in relevant part:

> wherein the set of spreading codes comprises a hopped sub-set of a larger set of spreading codes, and further comprising assigning a non-hopped sub-set of the larger set of spreading codes to individual ones of said plurality of subscriber stations for use on a system access channel.

To this element the Office Action cites Dent at col. 5, lines 29-45, and refers also to col. 6, lines 24-28 which discloses that some frequencies may be reserved for other uses such as a broadcast control channel rather than apportioned for frequency hopping.

A reasonable reading of the combination of Toskala, Vimpari and Dent would then yield a series of spreading codes among which various user stations hop, and a frequency over which the spreading codes do not spread over which control messages are broadcast. This is quite different from the element above cited for this claim group for two reasons.

First, the cited Dent transmissions are broadcast control messages, so they must be from some central control entity such as a cellular base station. These claims recite that a non-hopped subset of spreading codes are assigned to individual ones of the subscriber stations. Dent does not reserve a frequency for an individual subscriber, but for that central control entity that broadcasts control messages. Dent's use of the term "broadcast" is not superfluous, instructions on the control channel are sent for common reception by all subscribers; there is no separate control channel for separate subscribers. In contradistinction, assigning a channel to a subscriber unit, whether that channel is hopped, spread spectrum, or otherwise, cannot be

for broadcast or for control messages because the subscriber unit is not autonomous in the cell to send control messages and does not broadcast to other subscribers.

Second, in no grouping of prior art teachings is there a cell in which some subscribers hop (frequencies, spreading codes, etc) and other subscribers do not, or that some subscribers hop on a traffic channel and use a non-hop spreading code on a system access channel. As above, Dent teaches that all subscribers hop frequencies while control messages are broadcast to them on reserved frequencies, not reserved non-hop spreading codes. Since by definition the control channel is for reception by all subscribers, adding Dent's control messages to Toskala and Vimpari would result in reserving some frequency-based channels for the broadcast of control messages and hopping among spreading code-based channels for traffic, where the hopped spreading codes avoid those frequencies reserved to the frequency-based control channels. This follows the plain language of Dent, and is seen as the simplest implementation because no subscriber would need to simultaneously de-correlate different messages received over a traffic and a control channel (messages on the control channel would not be spread). It is noted that both Toskala and Vimpari teach away from such a processing-intensive modification (Toskala at col. 2, lines 1-3; Vimpari at col. 7, lines 12-15).

Even assuming arguendo one would undertake the additional hardware and processing capacity needed for simultaneous de-spreading of traffic and control messages in each subscriber unit, such would not result in some subscribers hopping their spreading codes and others not hopping because the control messages still would not originate from a subscriber to whom a non-hop spreading code is assigned, but from the central controlling broadcasting entity that would typically do the assigning. Dent's control messages are on the downlink (base station to subscriber) and are for use once the subscriber is established on the cell's network; the claims in this group assign non-hopped spreading codes to subscriber stations for use on a system access channel, where the subscriber station uses the assigned non-hop spreading code on the uplink to gain access to the network.

A second distinguishing feature over the cited art is present in claims 6, 9-10, 16, 19 and 25-26. Claim 6 is taken as representative for purposes of these remarks, and recites in relevant part:

> wherein the step of periodically hopping changes from a currently used

spreading code to a next spreading code at a symbol rate or at a multiple of the symbol rate.

To the more general claim element: "periodically hopping amongst individual ones of the spreading codes of the set of spreading codes", the Office Action cites to Toskala at Figure 5 and the second embodiment at col. 9, lines 45-67 wherein a spreading control means causes a spreading code being hopped at least between two different spreading codes. Toskala is directed to reducing interference in a radio system (title, abstract), and its particular solution is to change the spreading code phase (preferred embodiment, col. 3, lines 29-38) or to switch to another spreading code (second embodiment, col. 9, lines 45-67). The change of phase or spreading code may be upon command when mutual interference grows too high, or continuously (col. 3, lines 29-38). The Office Action does not appear to assert that Toskala teaches or suggests changing spreading codes at symbol boundaries or multiples thereof.

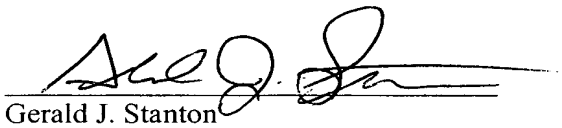
Vimpari is cited at col. 5, lines 50-67 as teaching using intercell handovers to re-allocate spreading codes of existing links when they become available. Vimpari explicitly recites in that passage that such intercell re-allocation is executed only when a determination is made that the new spreading code would provide better performance (reduced interference) than one of the spreading codes currently assigned. Such conditional reassignment is consistent with the whole teaching of Vimpari, that spreading codes are assigned based on computed cross correlation with other codes already in use (see abstract, col. 4, lines 6-18; col. 6, lines 3-9 and 25-29; and independent claims 1 and 11). In this regard it is consistent with the Toskala embodiment of commanding a change to phase or spreading code when mutual interference grows too high, in that both references condition a spreading code change to a measured performance metric.

In contradistinction, claim 6 recites changing spreading codes at the symbol rate or a multiple thereof; claim 9 recites at the symbol rate or at a multiple of the symbol rate of one of the lowest symbol rate users; claim 10 recites at the symbol rate or at a multiple of the symbol rate of the lowest spreading gain users; and claims 24-25 each recite at a symbol boundary of at least one of the subscriber stations. Neither Toskala nor Vimpari are seen to disclose periodically changing a spreading code at a symbol boundary or symbol rate, so their combination must also fail in that respect. Both teach against such a processor intensive approach: Toskala at col. 2, lines 1-3 (an object of Toskala is to reduce the amount of

calculation needed for interference cancellation) and Vimpari at col. 7, lines 12-15 (Vimpari approach may not be technically feasible with long spreading codes). Whereas the present claims do not recite long spreading codes that Vimpari says may not be feasible, the claims in this group each recite a plurality of subscriber stations within a cell hopping at the symbol rate (or multiple thereof or symbol boundary) such that no two use the same spreading code at the same time. Given the necessity to avoid interference with stations in adjacent cells that is well known in the art (e.g., Vimpari in general), very short spreading codes on the order of Vimpari's are not seen as feasible for a reasonable plurality of subscriber stations. Short spreading codes are operable with Vimpari because the changes to spreading codes are infrequent and occur when measured interference exceeds a threshold, so at any given time there need be only one or two non-assigned spreading codes to be used in Vimpari's code re-allocation embodiment. Changing spreading codes at the symbol rate as in claims 6 and 9-10 is not seen to be within Toskala or Vimpari, alone or in combination.

The Applicant respectfully requests that the Examiner review the cited art and rejections in light of the above remarks, and pass each of claims 3-6, 9-10, 13-16 and 19-26 to issue. The undersigned representative welcomes the opportunity to resolve any matters that may remain, formal or otherwise, via teleconference at the Examiner's discretion.

Respectfully submitted:



August 5, 2005
Date

Gerald J. Stanton
Reg. No.: 46,008

Customer No.: 29683
HARRINGTON & SMITH, LLP
4 Research Drive
Shelton, CT 06484-6212

Phone: (203) 925-9400
Facsimile: (203) 944-0245
Email: gstanton@hspatent.com

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

August 5, 2005
Date

Name of Person Making Deposit